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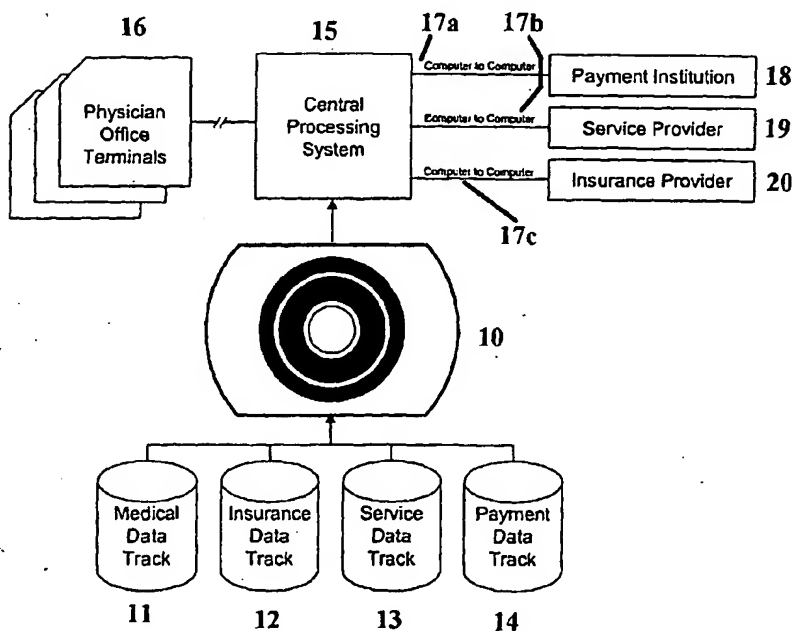
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[Continued on next page]

(54) Title: **PERSONAL HEALTH CARD CD**



(57) Abstract: An information processing system and method is provided to facilitate transactions in the health card system, by use of a wallet size health card computer disk (10) containing readable information, said card being presented at a health card providers computer terminal, which is connected via a network (17), to a plurality of servers in which data is stored on the card user's health insurance plan (20) and method of payment (20).

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## **PERSONAL HEALTH CARD CD**

### **1. BACKGROUND OF THE INVENTION**

An information processing system is provided for facilitating health care transaction, in which a wallet-size computer disk (CD) card system is created on material disposed on one side of the wallet-size card and computer readable information is recorded on a series of tracks on the CD card. Information recorded on the tracks may be personal, insurance, credit card and banking, security or other medical information. The card is presented to an information presentation terminal which is connected to a server storing electronic data, and the information presentation terminal in turn, is connected to a plurality of servers through a browser or a communication network such as Ethernet, Internet, ATM or a telephone line, such that the cardholder is permitted to obtain information or approval necessary to complete a transaction such as medical treatment. The system involves identifying a function having a corresponding function identifier, using a password or access card, presenting a request for information or approval at a point of transaction, and receiving a transaction approval or record of completion. The system and process are adapted to allow a message to be presented by the cardholder and service provider, to an insurer and/or a banking institution, finally being memorialized for later appearance on the card holder's transaction statement issued by the health provider.

### **2. BACKGROUND OF THE INVENTION**

The present invention relates to electronic transmission of data at a point of service over a communication network, and more specifically, to a system, method

and article of manufacture for securely transmitting personal, medical and payment information to successfully effect a transaction.

Identification cards have generally used magnetic data strips in conjunction with photographic prints of the card owner. The amount of information these cards can hold is extremely limited. In U.S. Patent No. 4,236,332, Domo discloses a medical card containing a microfilm portion having some data visible to the eye and other data visible by magnification. In U.S. Patent No. 4,213,038, Silverman et al. teach an access control system with an identification system. Drexler describes in U.S. Patent No. 4,745,268, a card which provides for simultaneous reading of machine readable and eye readable information. However, the prior art does not provide for adequate amount of data on a card which can be transmitted securely over a public communication system, such as the Internet.

It is desirable for a service provider to obtain information offered by a patient and transmitted by a computer operating under the control of the service provider over a publicly accessible packet-switched network to the computer operating under the control of the card holder, without risking the exposure of the information to interception by third parties that have access to the network. It is further desirable to have the ability for the service provider to transmit information, including a subset of the information provided by the card holder, over such a network to a payment gateway computer system that is authorized, by a bank or other financial institution that has the responsibility of providing payment on behalf of the card holder, to authorize a transaction on behalf of such a financial institution, without the risk of exposing that information to interception by third parties.

Some attempts to provide such a secure transmission channel are technologies such as: (1) the Secure Electronic Transaction (SET) jointly developed by the Visa and MasterCard card associations, and described in Visa and MasterCard's Secure Electronic Transaction (SET) (Specification, Feb. 23, 1996); (2) the Secure Transaction Technology (STT); (3) the Secure Electronics Payments Protocol (SEPP); (4) Internet Keyed Payments (iKP); (5) Net Trust, and Cybercash Credit Payment Protocol; (6) Netscape Inc's Secure Sockets Layer (SSL) (The SSL Protocol Version 3.0, March 1996); (7) the Private Communications Technology (PCT) from Microsoft, Inc.; (8) Secure Hyper-Text Transport Protocol (SHTTP) and (9) Pretty Good Privacy (PGP). One of ordinary skill in the art will readily comprehend that any of the general-purpose secure communication protocols can be substituted for the SSL transmission protocol without due experimentation.

### **3. SUMMARY OF THE INVENTION**

According to the present invention, a system in which a wallet-size CD card is created on a computer disk material. The card contains a series of tracks, each track identifies a system which discloses information on personal data, insurance, credit cards, banking, security or medical. Each track further identifies a system with which the track may be used, and a column that identifies a data and time field indicating when a particular system can be selected for use. The system comprises an information presentation terminal, a plurality of servers having electronic data stored on the user's medical insurance and/or payment method, and a communication means or browser.

The card is presented to an information presentation terminal which is

connected to a server storing electronic data, and the information presentation terminal in turn, is connected to a plurality of servers through a browser or a communication network such as Ethernet, Internet, ATM or a telephone line, such that the cardholder is permitted to obtain information or approval necessary to complete a transaction such as medical treatment.

A null value in the date time field indicates that the system for a specific track is not in use. The system and process involve identifying a function having a corresponding function identifier, identifying a point of transaction and receiving a transaction request. In another embodiment of the invention the wallet-size health card is adapted to allow message to be presented by the card holder and service provider during a transaction for later appearance on a health card statement.

According to a broad aspect of a preferred embodiment of the invention, data is secured and transmitted from the card between a plurality of computer systems over a public communication system such as the Internet. Secure transmission of data is provided from the card holder's or physician's computer system to a service provider's computer system, and for the further secure transmission of data from the service provider's computer to a payment of health insurer's gateway computer system. The health insurer or the payment gateway systems evaluate the information and return authorization or denial via a secure transmission to the presentation terminal which is communicated to the card holder by the service provider.

The present invention has been made to provide health card designed to retrieve information from a plurality of computers in which electronic data is

transmitted via the network, e.g., the Internet and easily managed by a series of servers. It is the second object of the present invention to provide a flexible information retrieval scheme which can cope with needs of different users. It is the third object of the present invention to provide a health card which can be presented at a terminal by use of the card holder's secret password or pin number, and making the transmission of data between computers secure by encryption.

According to the present invention, there is provided a method of obtaining electronic data corresponding to a given identification name in a network of computer terminals which are connected via communication means to a server storing electronic data and having a function of sending, upon reception of a transmission request including an identification name for specifying electronic data, a response including electronic data corresponding to the card holder's identification name. The method involves retrieval of information or authorization by an insurer required to provide health care by a provider and eventually completing the transaction through payment for series by the bank or financial institution.

According to the present invention, a large-capacity storage medium such as a CD-ROM is loaded on a computer using a password or access code. This large-capacity storage medium is referred to for information desired to be presented. If the desired information exists in the large-capacity storage medium, it is presented, if it does not exist, the desired information is obtained from a server which is accessed via the electronic media or Internet. Further, data transmission is secured by encryption or other methods.

Additional object and advantages of the invention will be set forth in the

description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The object and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations, particularly pointed out in the appended claims.

#### **4. BRIEF DESCRIPTION OF THE DRAWINGS**

The foregoing and other objects, aspects and advantages are better understood from the following detailed description of a preferred embodiment of the invention with reference to the drawings, in which:

Fig. 1 is a block diagram of a representative hardware environment in accordance with a preferred embodiment at any of the network computers;

Fig. 2 is a top view of a preferred embodiment of health CD card of the present invention, representing in this example four tracks including the cardholder data track, the insurance track, the service provider track and the payment institution track;

Fig. 3 represents the health CD card the central processing system, the physician's office terminals connected to the central processing system and the central processing system connected by computers to the payment institution, the service provider and the insurance provider.

Fig. 4 represents a flowchart for explaining the processing procedure of information presentation and information retrieval terminals in the preferred embodiment.



Fig. 5 is a block diagram showing the arrangement of a health CD card presentation terminal, the communication network, and the processing unit of the health provider, the electronic data base and the display unit at the presentation terminal.

Fig. 6 is a flowchart explaining the processing procedure of presenting information at the terminal and obtaining approval from the health insurer.

Fig. 7 is a flowchart explaining the processing procedure of preset an electronic billing statement to the bank and having an electronic transaction of money transfers.

#### **DETAILED DESCRIPTION OF THE INVENTION**

An embodiment of the present invention will be described below with some views of the accompanying drawings.

The preferred embodiment of the present invention is related to an improvement of the worldwide web (www) browser in an information presentation system and/or an information retrieval system constituted by a conventional www server and a www browser. The term "www server" used herein represents a computer in which an existing www server program runs, and the "www browser" represents a computer in which an existing www browser program runs.

The www server holds various information as text files of the HTML (Hyper Text Markup Language) format and an image file of the (GIF) format. The text file of the HTML format includes a tag used to refer to the image file of the GIF format. All

information represented as a text file of the HTML format or an image file of the GIF format are called electronic data.

A card holder presents to a computer terminal personal identification password or access code by loading the card CD and requests access to a specific server listed on the card.

The www browser sends to the specific www server, the identification of the user and the request for validation and approval of a claim the user wants to make. The request is converted into a secured transmission and includes information, for specifying the www server having the requested information and, therefore, even if a plurality of www servers exist, the transmission request can be sent to the desired www server. Therefore, assuming that a transmission request including the encoding information (file A) is sent to the www server, say for example of a health insurer. Upon reception of the transmission request including the encoded information, the www server converts the encoded information into the pathname of the local file of the server, reads the contents of a file designated by the pathname, and returns a response including the contents to the www browser. In this case, the www server returns a encrypted response including the encoded information (file A) to the www browser.

Upon reception of the response, the www browser refers to its header information to identify the type-test file of the HTML format or image file of the GIF format – and outputs the contents on a display unit in accordance with the type. The arrangement of the preferred embodiment of the present invention is described in Figs. 1 to 7.

Fig. 1 is a block diagram of the representative hardware environment at any of the computers in the network.

Fig. 2 describes the health card CD (10) of the present invention having 4 tracks (11), (12), (13) and (14) represent electronic information about the cardholder's medical and personal identification data, the health insurer's policy coverage and access information, the service provider's physician in charge and medical services, and the payment bureau be it a bank account or credit card access.

Fig. 3 represents a schematic of the health card CD (10), the presentation central processing system, the physician's office terminals (16) the www browsers (17a), (17b), 17c) and the www servers (18), (19) and (20).

Fig. 4 represents a flowchart for explaining the processing procedure of information presentation of health card 10 to the CPU, and includes in addition, two stations (21) and (22) which are provided to secure the data transmitted through the system.

Fig. 5, 6 and 7 describe the sequence of events during which the health card (10) is presented at a computer (15) in the physician's office, is subjected to an identification step 101, and presents the personal and medical data as well as insurance data to the www browser 102. The data are transmitted by the communication network 103 to one or more www servers depending on the nature of the information and purpose of the task, for example, insurance approval or payment by the bank (18). The present invention assumes that the health card CD (10) is

issued by a credible vendor who works in concert with the insurer, the health provider and the banking institution. The advantage of this invention is convenience, security, cost and efficiency of transactions in health card industry.

Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details and representative embodiments shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents.

## WHAT IS CLAIMED IS:

1. An information processing system which is connected via communication means to a presentation terminal and a plurality of servers storing electronic data and having a function for, upon reception of a transmission request including an identification name and a date and time for requesting specific access or approval for a transaction, said system comprising a health card computer disk (CD) in which electronic data are recorded and permanently stored;

a first server wherein the health card CD is presented for identification;

a second server in which the electronic data and identification name can be read or rewritten.

Identification name obtaining means for obtaining an identification name of electronic data to be retrieved.

Information means for serving a transmission request including the identification name and the prepared date and time to said server;

Information obtaining means for reading electronic data corresponding to the identification name from the health card CD; and information presentation means for presents the electronic data obtained by said information obtaining means.

2. The information processing system according to claim 1, wherein the first server is selected from a group consisting of

health provider, health insurers, banking institutions and credit bureau.

3. A method of obtaining electronic data corresponding to a given identification name which is usable in an information processing system that is connected via communication means to a server storing electronic data and having a function of, upon reception of a transmission request including an identification name for requesting specific access or approval for a transaction, the method comprising the steps of:

presenting a health card CD to a server; searching said CD for an identification name;

sending to a second server, a transmission request including the identification name, receiving a response from said second server corresponding to the transmission request;

determining whether the received response includes an approval for a transaction.

4. The method according to claim 3, further comprising the information requesting step of, sending a transmission request to a second server, and wherein the information requesting step is executed on demand on a user's request.

5. A health card computer disk comprising:

a material disposed on one side of the card wherein computer readable information is recorded on a plurality of tracks, and the tracks may contain electronic data on personal medical data, insurance or credit card status, which is secured by encoding or encryption.

Fig. 1

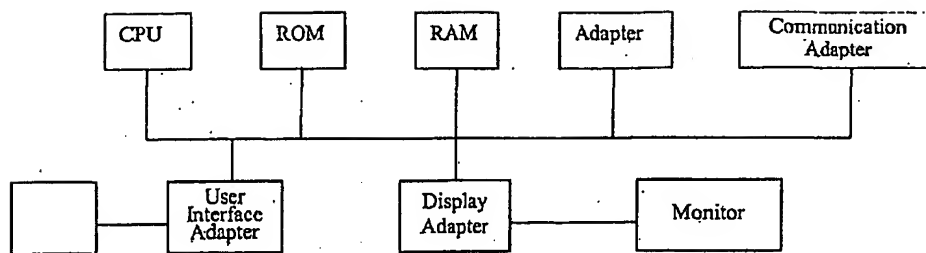
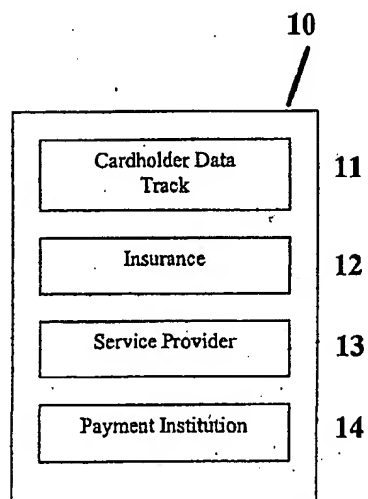


Fig. 2 CD Card





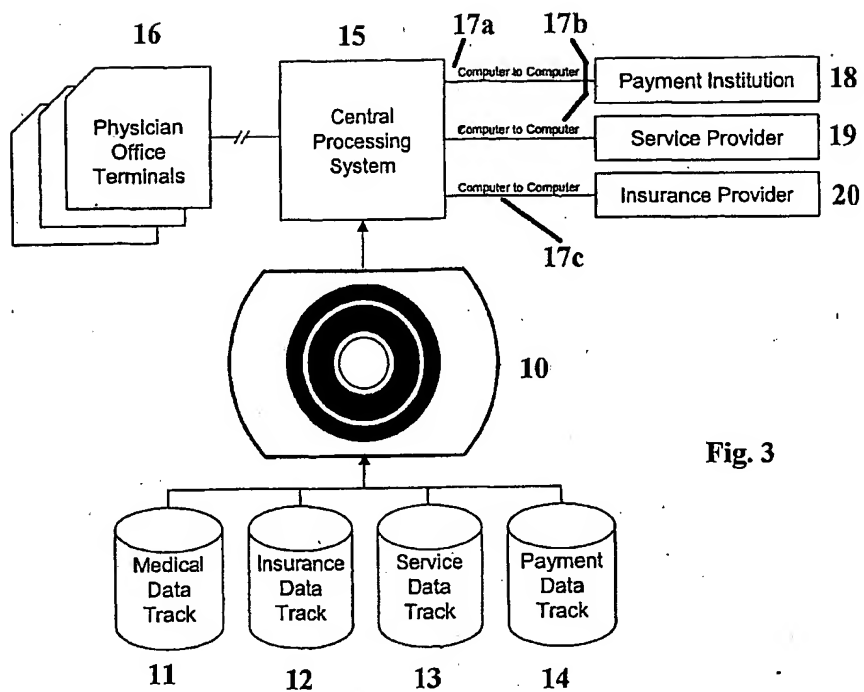


Fig. 3

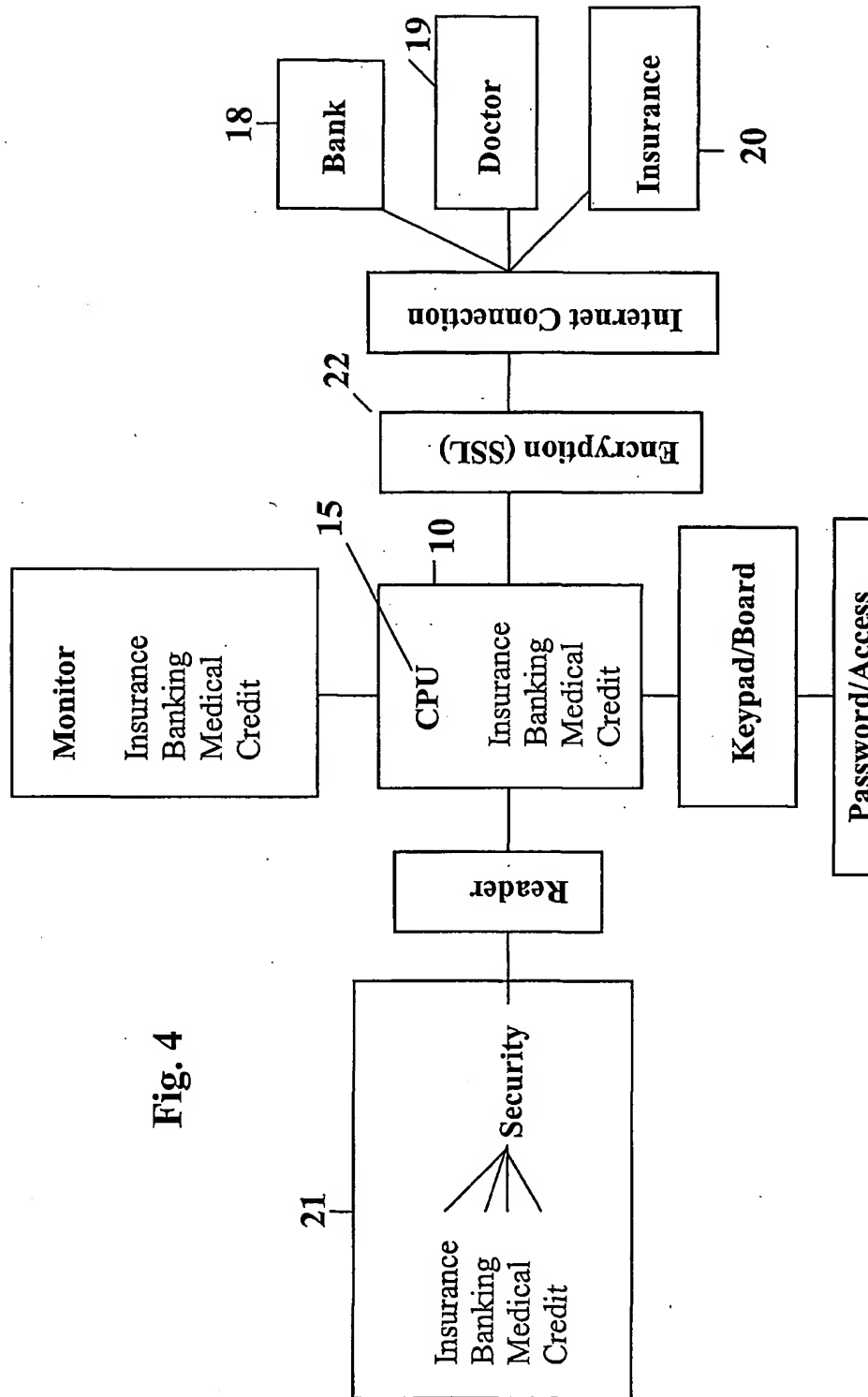
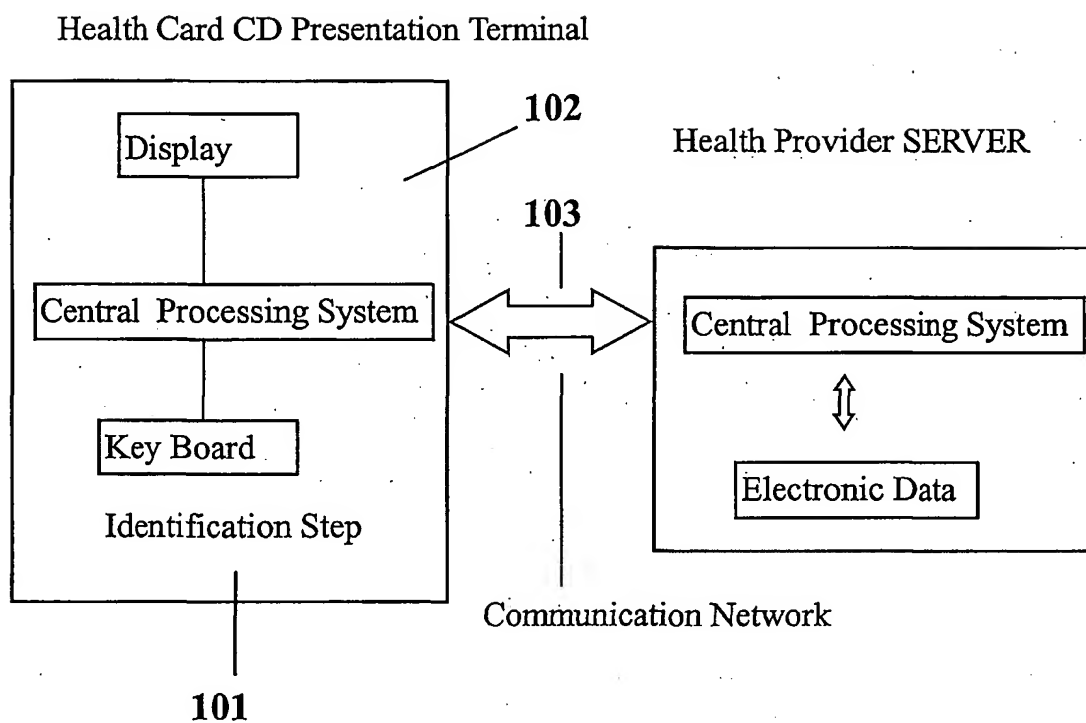
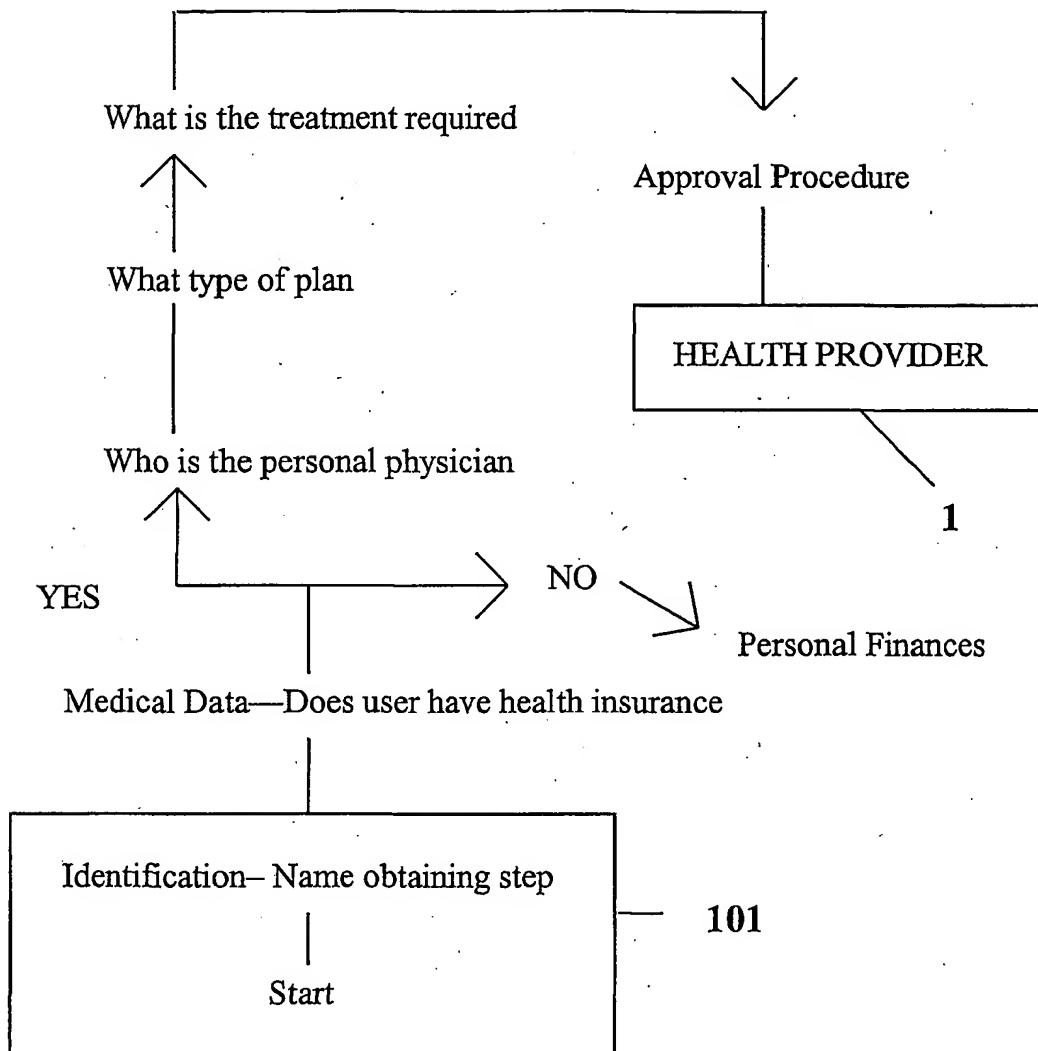
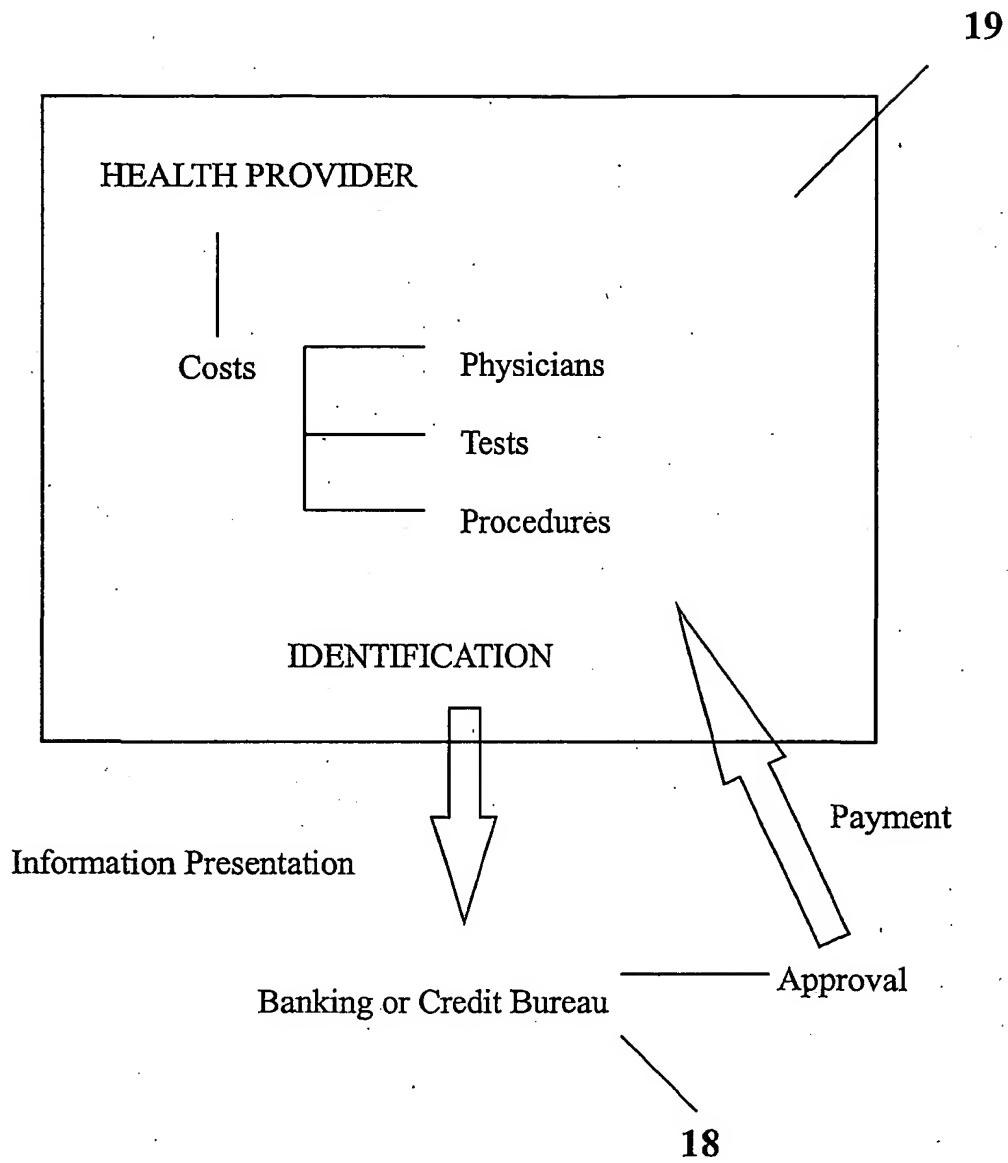


Fig. 4

**Fig. 5**

**Fig. 6**

**Fig . 7**



## INTERNATIONAL SEARCH REPORT

International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G06F 17/60

US CL : 705/3

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,038,551 A (BARLOW et al.) 14 March 2000, col. 5, lines 12-33, col. 6, lines 26-45, figure 6.	1-5
X	US 6,016,476 A (MAES et al.) 18 January 2000, col. 2, lines 23-67, col. 3, lines 1-67, col. 4, lines 1-23.	1-5

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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